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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/086,856	03/04/2002	Koichiro Ishii	045070-5035	4299

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EXAMINER

KOVAL, MELISSA J

ART UNIT

PAPER NUMBER

2851

DATE MAILED: 04/10/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/086,856

Applicant(s)

ISHII, KOICHIRO

Examiner

Melissa J Koval

Art Unit

2851

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☒ Claim(s) 3, 5 and 8 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 March 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Priority

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609 A(1) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered. The examiner refers to Japanese Patent Application No. 2001-062115 referred to on page 1 of the specification.

Drawings

Figure s 6A, 6B, 11 and 12A-12D should be designated by a legend such as -- Prior Art -- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

Applicant is reminded of the proper content of an abstract of the disclosure.

A patent abstract is a concise statement of the technical disclosure of the patent and should include that which is new in the art to which the invention pertains. If the patent is of a basic nature, the entire technical disclosure may be new in the art, and the abstract should be directed to the entire disclosure. If the patent is in the nature of an improvement in an old apparatus, process, product, or composition, the abstract should include the technical disclosure of the improvement. In certain patents, particularly those for compounds and compositions, wherein the process for making and/or the use thereof are not obvious, the abstract should set forth a process for making and/or use thereof. If the new technical disclosure involves modifications or alternatives, the abstract should mention by way of example the preferred modification or alternative.

The abstract should not refer to purported merits or speculative applications of the invention and should not compare the invention with the prior art.

Where applicable, the abstract should include the following:

- (1) if a machine or apparatus, its organization and operation;
- (2) if an article, its method of making;
- (3) if a chemical compound, its identity and use;
- (4) if a mixture, its ingredients;
- (5) if a process, the steps.

Extensive mechanical and design details of apparatus should not be given.

Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

The abstract of the disclosure is objected to because the specification exceeds 150 words. Correction is required. See MPEP § 608.01(b).

The disclosure is objected to because of the following informalities: Applicant is requested to formally enter the inventor's changes that appear in ink in the specification on pages 20 and 22. Specifically, on page 20, line 23, change "110b" to -- 110B --, and on page 22, lines 8 and 9, change "an optical elastic modulus" to -- a photoelastic constant --.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1 - 9 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claims 1, 2, 6, 7 and 9 incorporate the phrase "CIE1976UCS chromaticity diagram" as part of the limitations set forth therein. Applicant is asked to provide a clearer teaching of said diagram with specifically defined parameters as directed to the claims. The examiner assumes that this chart specifies an international standard for

chromaticity, however chromaticity standards are not absolute and may be changed. Therefore the claim language is deemed to be indefinite, because the limitations described therein are subject to change as defined by international chromaticity standards.

Claims 3 through 5 and 8 are rejected as they depend from an already rejected base claim or an intervening claim.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 2, 4, 6, 7 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dove et al. ('861), Figure 7 in view of Figure 1.

Refer to Figure 7 and Figure 1 of Dove et al. ('861).

Claim 1 sets forth: "A projection type display device comprising:

an illumination optical system for supplying an illumination radiation (lamp 104, Fig. 1);

a polarization splitting/color separating optical system for polarization-splitting and color separating beam from said illumination optical system (Refer to PBS 120 of Fig. 1. Each light valve for one of the three primary colors is optically connected to a PBS in Fig. 1. In Fig. 7, refer to PBS 702 and phase correcting plate 712.);

reflection type light valves, each taking a rectangular shape, for modulating the beam from said polarization splitting/color separating optical system in accordance with an image signal and letting the modulated beams exit (Refer to light valve 122 of Figure 1. There is one light valve for each of the three primary colors in Fig. 1. Also refer to dichroic mirrors 114 in Fig. 1. In Fig. 7, see light valves 710.);

a color synthesizing optical system for color synthesizing the beams from said reflection type light valves (Refer to color combiner 124 in Fig. 1. In Figure 7, refer to prisms 704, 706, and 708.);

a light analyzing optical system for analyzing the beam from said color synthesizing optical system (PBS 702 of Figure 7.); and

a projection optical system for projecting on a predetermined surface an image based on the image signal generated in said reflection type light valves (projection lens 126 of Fig. 1.),

wherein when the image signal indicates black, said color synthesizing optical system and each of said light valve are positioned so that coordinates in CIE1976UCS chromaticity diagram that show a color of a predetermined point in the vicinity of an apex but inside of the apex of a rectangular display area on the predetermined surface, fall within a distance equal to or less than 0.09 from coordinates in the chromaticity diagram that show a color at the center of said light valve." Refer to column 4 lines, 32 through 63, wherein a relationship between the black state of a light valve and proper primary chromaticity is set forth. Improving contrast for the projection system is an

object of the invention taught by Dove et al. and Dove et al. achieve the improvement in contrast by means of the relationship between black and chromaticity.

Figure 7 of Dove et al. essentially meets the limitations of claim 1, however placement of a light source and projection lens are not shown. Said missing elements are clearly shown in Figure 1. It is implied with respect to the description of Figure 7, in column 10, lines 1 through 29, that the elements shown therein could be substituted for the elements comprised within the dotted lines shown in Figure 1. Projection lens 126 would remaining is such a substitution were made as the lens is required for the projection system to work as desired. It would have been obvious to one having ordinary skill in the art at the time the invention was mad to make the substitution as just described. The motivation for one having ordinary skill in the art to make the substitution would be to achieve improved contrast for the projection system by further eliminating the leakage of black for each light valve and allowing for proper primary chromaticity.

Claims 2, 6, 7 and 9 are rejected for the reasons already applied to rejected claim 1. In either claims 1 or 2, an apex, or in other words an optimal point of color illumination must exist, and the light must have aberration characteristics that may fall within a certain tolerance from that point to the edges of the light valve, thus defining the range described in claims 1 or 2. Therefore these limitations in claims 1, 2, 6, 7 and 9 are met by the teaching of Dove et al. as far as the limitations of claims 1 and 2 can be understood.

With respect to claim 4, refer again to Figure 7, and also to the dichroic surfaces described with respect to Figure 8. Also refer to column 10, lines 31 through 34, and column 11, lines 1 and 2.

Allowable Subject Matter

Claims 3, 5 and 8 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: The prior art neither shows nor suggests a relationship between wavelength regions and the first and second prisms of the color synthesizing system. The prior art neither shows nor suggests a teaching with respect to apex angle. Nor does the prior art show or suggest a specific relationship such that can be described by a ratio between a position corresponding to a distance between the center of a light valve and the apex of the same light valve.

Conclusion

The art made of record and not relied upon is considered pertinent to applicant's disclosure.

Nakazawa et al. U.S. Patent 6,457,829 B1 teaches a projection device comprising a correction lens arranged between a prism optical system and at least one of three optical modulation elements.

Kunzman U.S. Patent 6,536,904 B2 teaches a reduced color separation white enhancement for sequential color displays.

Evanicky U.S. Patent Application Publication US 2002/0163529 A1 teaches a multiple light source color balancing system within a liquid crystal flat panel display.


Kunzman U.S. Patent Application Publication US 2002/0122160 A1 teaches a reduced color separation white enhancement for sequential color displays.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melissa J Koval whose telephone number is (703) 308-4801. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Russell Adams can be reached on Monday through Thursday at (703) 308-2847. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-3431 for regular communications and (703) 308-7382 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

MJK
April 3, 2003


RUSSELL ADAMS
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